

## **RAW SEQUENCE LISTING**

**The Biotechnology Systems Branch of the Scientific and Technical  
Information Center (STIC) no errors detected.**

Application Serial Number: 10/083,849 C  
Source: IFW/6  
Date Processed by STIC: 07/27/2005

# ***ENTERED***



IFW16

## RAW SEQUENCE LISTING

DATE: 07/27/2005

PATENT APPLICATION: US/10/083,849C

TIME: 11:39:57

Input Set : A:\SequenceListing2.txt

Output Set: N:\CRF4\07272005\J083849C.raw

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3 <110> APPLICANT: Noteborn, Mathieu
4   Rohn, Jennifer Leigh
5   Mumberg, Dominik
6   Donner, Peter
8 <120> TITLE OF INVENTION: Modifications of Apoptin
10 <130> FILE REFERENCE: 2906-4996.1
12 <140> CURRENT APPLICATION NUMBER: 10/083,849C
13 <141> CURRENT FILING DATE: 2001-10-19
15 <150> PRIOR APPLICATION NUMBER: US 60/242,397
16 <151> PRIOR FILING DATE: 2000-10-20
18 <160> NUMBER OF SEQ ID NOS: 20
20 <170> SOFTWARE: PatentIn version 3.1
22 <210> SEQ ID NO: 1
23 <211> LENGTH: 121
24 <212> TYPE: PRT
25 <213> ORGANISM: Chicken anemia virus
27 <220> FEATURE:
28 <221> NAME/KEY: MISC_FEATURE
29 <222> LOCATION: (1)..(121)
30 <223> OTHER INFORMATION: Apoptin (a small protein derived from chicken anemia virus)
encod
31   ed by pCMV-Vp3 and by GFP-Apoptin constructs
34 <400> SEQUENCE: 1
36 Met Asn Ala Leu Gln Glu Asp Thr Pro Pro Gly Pro Ser Thr Val Phe
37 1      5      10      15
40 Arg Pro Pro Thr Ser Ser Arg Pro Leu Glu Thr Pro His Cys Arg Glu
41      20      25      30
44 Ile Arg Ile Gly Ile Ala Gly Ile Thr Ile Thr Leu Ser Leu Cys Gly
45      35      40      45
48 Cys Ala Asn Ala Arg Ala Pro Thr Leu Arg Ser Ala Thr Ala Asp Asn
49      50      55      60
52 Ser Glu Ser Thr Gly Phe Lys Asn Val Pro Asp Leu Arg Thr Asp Gln
53 65      70      75      80
56 Pro Lys Pro Pro Ser Lys Lys Arg Ser Cys Asp Pro Ser Glu Tyr Arg
57      85      90      95
60 Val Ser Glu Leu Lys Glu Ser Leu Ile Thr Thr Thr Pro Ser Arg Pro
61      100     105     110
64 Arg Thr Ala Arg Arg Arg Ile Arg Leu
65      115     120
68 <210> SEQ ID NO: 2
69 <211> LENGTH: 121
70 <212> TYPE: PRT
71 <213> ORGANISM: Chicken anemia virus
73 <220> FEATURE:

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74 <221> NAME/KEY: MUTAGEN  
 75 <222> LOCATION: (1)..(121)  
 76 <223> OTHER INFORMATION: Apoptin protein encoded by pIRESneo alanine mutants  
 79 <220> FEATURE:  
 80 <221> NAME/KEY: MISC\_FEATURE  
 81 <223> OTHER INFORMATION: Differs from Apoptin protein encoded by pCMV-Vp3 and by GFP-Apopt  
 82 in constructs by replacement of the arginine residue at position  
 83 116 with a lysine residue  
 86 <400> SEQUENCE: 2  
 88 Met Asn Ala Leu Gln Glu Asp Thr Pro Pro Gly Pro Ser Thr Val Phe  
 89 1 5 10 15  
 92 Arg Pro Pro Thr Ser Ser Arg Pro Leu Glu Thr Pro His Cys Arg Glu  
 93 20 25 30  
 96 Ile Arg Ile Gly Ile Ala Gly Ile Thr Ile Thr Leu Ser Leu Cys Gly  
 97 35 40 45  
 100 Cys Ala Asn Ala Arg Ala Pro Thr Leu Arg Ser Ala Thr Ala Asp Asn  
 101 50 55 60  
 104 Ser Glu Ser Thr Gly Phe Lys Asn Val Pro Asp Leu Arg Thr Asp Gln  
 105 65 70 75 80  
 108 Pro Lys Pro Pro Ser Lys Lys Arg Ser Cys Asp Pro Ser Glu Tyr Arg  
 109 85 90 95  
 112 Val Ser Glu Leu Lys Glu Ser Leu Ile Thr Thr Thr Pro Ser Arg Pro  
 113 100 105 110  
 116 Arg Thr Ala Lys Arg Arg Ile Arg Leu  
 117 115 120  
 120 <210> SEQ ID NO: 3  
 121 <211> LENGTH: 121  
 122 <212> TYPE: PRT  
 123 <213> ORGANISM: Chicken anemia virus  
 125 <220> FEATURE:  
 126 <221> NAME/KEY: MUTAGEN  
 127 <222> LOCATION: (1)..(121)  
 128 <223> OTHER INFORMATION: mutant Ala(5)-86 of 5-alanine linker-scanning mutant series  
 of Ap  
 129 optin  
 132 <400> SEQUENCE: 3  
 134 Met Asn Ala Leu Gln Glu Asp Thr Pro Pro Gly Pro Ser Thr Val Phe  
 135 1 5 10 15  
 138 Arg Pro Pro Thr Ser Ser Arg Pro Leu Glu Thr Pro His Cys Arg Glu  
 139 20 25 30  
 142 Ile Arg Ile Gly Ile Ala Gly Ile Thr Ile Thr Leu Ser Leu Cys Gly  
 143 35 40 45  
 146 Cys Ala Asn Ala Arg Ala Pro Thr Leu Arg Ser Ala Thr Ala Asp Asn  
 147 50 55 60  
 150 Ser Glu Ser Thr Gly Phe Lys Asn Val Pro Asp Leu Arg Thr Asp Gln  
 151 65 70 75 80  
 154 Pro Lys Pro Pro Ser Ala Ala Ala Ala Asp Pro Ser Glu Tyr Arg  
 155 85 90 95  
 158 Val Ser Glu Leu Lys Glu Ser Leu Ile Thr Thr Thr Pro Ser Arg Pro  
 159 100 105 110

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162 Arg Thr Ala Arg Arg Arg Ile Arg Leu
163      115      120
166 <210> SEQ ID NO: 4
167 <211> LENGTH: 121
168 <212> TYPE: PRT
169 <213> ORGANISM: Chicken anemia virus
171 <220> FEATURE:
172 <221> NAME/KEY: MUTAGEN
173 <222> LOCATION: (1)..(121)
174 <223> OTHER INFORMATION: mutant Ala(5)-91 of 5-alanine linker-scanning mutant series
of Ap
175      optin
178 <400> SEQUENCE: 4
180 Met Asn Ala Leu Gln Glu Asp Thr Pro Pro Gly Pro Ser Thr Val Phe
181 1      5      10      15
184 Arg Pro Pro Thr Ser Ser Arg Pro Leu Glu Thr Pro His Cys Arg Glu
185      20      25      30
188 Ile Arg Ile Gly Ile Ala Gly Ile Thr Ile Thr Leu Ser Leu Cys Gly
189      35      40      45
192 Cys Ala Asn Ala Arg Ala Pro Thr Leu Arg Ser Ala Thr Ala Asp Asn
193      50      55      60
196 Ser Glu Ser Thr Gly Phe Lys Asn Val Pro Asp Leu Arg Thr Asp Gln
197 65      70      75      80
200 Pro Lys Pro Pro Ser Lys Lys Arg Ser Cys Ala Ala Ala Ala Ala Arg
201      85      90      95
204 Val Ser Glu Leu Lys Glu Ser Leu Ile Thr Thr Thr Pro Ser Arg Pro
205      100     105     110
208 Arg Thr Ala Arg Arg Arg Ile Arg Leu
209      115     120
212 <210> SEQ ID NO: 5
213 <211> LENGTH: 121
214 <212> TYPE: PRT
215 <213> ORGANISM: Chicken anemia virus
217 <220> FEATURE:
218 <221> NAME/KEY: MUTAGEN
219 <222> LOCATION: (1)..(121)
220 <223> OTHER INFORMATION: mutant Ala(5)-96 of 5-alanine linker-scanning mutant series
of Ap
221      optin
224 <400> SEQUENCE: 5
226 Met Asn Ala Leu Gln Glu Asp Thr Pro Pro Gly Pro Ser Thr Val Phe
227 1      5      10      15
230 Arg Pro Pro Thr Ser Ser Arg Pro Leu Glu Thr Pro His Cys Arg Glu
231      20      25      30
234 Ile Arg Ile Gly Ile Ala Gly Ile Thr Ile Thr Leu Ser Leu Cys Gly
235      35      40      45
238 Cys Ala Asn Ala Arg Ala Pro Thr Leu Arg Ser Ala Thr Ala Asp Asn
239      50      55      60
242 Ser Glu Ser Thr Gly Phe Lys Asn Val Pro Asp Leu Arg Thr Asp Gln
243 65      70      75      80
246 Pro Lys Pro Pro Ser Lys Lys Arg Ser Cys Asp Pro Ser Glu Tyr Ala

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247                    85                    90                    95  
 250 Ala Ala Ala Ala Lys Glu Ser Leu Ile Thr Thr Thr Pro Ser Arg Pro  
 251                    100                    105                    110  
 254 Arg Thr Ala Arg Arg Arg Ile Arg Leu  
 255                    115                    120  
 258 <210> SEQ ID NO: 6  
 259 <211> LENGTH: 121  
 260 <212> TYPE: PRT  
 261 <213> ORGANISM: Chicken anemia virus  
 263 <220> FEATURE:  
 264 <221> NAME/KEY: MUTAGEN  
 265 <222> LOCATION: (1)..(121)  
 266 <223> OTHER INFORMATION: mutant Ala(5)-101 of 5-alanine linker-scanning mutant series

of A

267                    poptin  
 270 <400> SEQUENCE: 6  
 272 Met Asn Ala Leu Gln Glu Asp Thr Pro Pro Gly Pro Ser Thr Val Phe  
 273 1                    5                    10                    15  
 276 Arg Pro Pro Thr Ser Ser Arg Pro Leu Glu Thr Pro His Cys Arg Glu  
 277                    20                    25                    30  
 280 Ile Arg Ile Gly Ile Ala Gly Ile Thr Ile Thr Leu Ser Leu Cys Gly  
 281                    35                    40                    45  
 284 Cys Ala Asn Ala Arg Ala Pro Thr Leu Arg Ser Ala Thr Ala Asp Asn  
 285                    50                    55                    60  
 288 Ser Glu Ser Thr Gly Phe Lys Asn Val Pro Asp Leu Arg Thr Asp Gln  
 289 65                    70                    75                    80  
 292 Pro Lys Pro Pro Ser Lys Lys Arg Ser Cys Asp Pro Ser Glu Tyr Arg  
 293                    85                    90                    95  
 296 Val Ser Glu Leu Ala Ala Ala Ala Thr Thr Thr Pro Ser Arg Pro  
 297                    100                    105                    110  
 300 Arg Thr Ala Arg Arg Arg Ile Arg Leu  
 301                    115                    120  
 304 <210> SEQ ID NO: 7  
 305 <211> LENGTH: 121  
 306 <212> TYPE: PRT  
 307 <213> ORGANISM: Chicken anemia virus  
 309 <220> FEATURE:  
 310 <221> NAME/KEY: MUTAGEN  
 311 <222> LOCATION: (1)..(121)  
 312 <223> OTHER INFORMATION: mutant Ala(5)-106 of 5-alanine linker-scanning mutant series

of A

313                    poptin  
 316 <400> SEQUENCE: 7  
 318 Met Asn Ala Leu Gln Glu Asp Thr Pro Pro Gly Pro Ser Thr Val Phe  
 319 1                    5                    10                    15  
 322 Arg Pro Pro Thr Ser Ser Arg Pro Leu Glu Thr Pro His Cys Arg Glu  
 323                    20                    25                    30  
 326 Ile Arg Ile Gly Ile Ala Gly Ile Thr Ile Thr Leu Ser Leu Cys Gly  
 327                    35                    40                    45  
 330 Cys Ala Asn Ala Arg Ala Pro Thr Leu Arg Ser Ala Thr Ala Asp Asn  
 331                    50                    55                    60

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334 Ser Glu Ser Thr Gly Phe Lys Asn Val Pro Asp Leu Arg Thr Asp Gln
335 65                               70                               75                               80
338 Pro Lys Pro Pro Ser Lys Lys Arg Ser Cys Asp Pro Ser Glu Tyr Arg
339                               85                               90                               95
342 Val Ser Glu Leu Lys Glu Ser Leu Ile Ala Ala Ala Ala Ala Arg Pro
343                               100                              105                              110
346 Arg Thr Ala Arg Arg Arg Ile Arg Leu
347                               115                              120

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350 &lt;210&gt; SEQ ID NO: 8

351 &lt;211&gt; LENGTH: 121

352 &lt;212&gt; TYPE: PRT

353 &lt;213&gt; ORGANISM: Chicken anemia virus

355 &lt;220&gt; FEATURE:

356 &lt;221&gt; NAME/KEY: MUTAGEN

357 &lt;222&gt; LOCATION: (1)..(121)

358 <223> OTHER INFORMATION: mutant Ala(5)-111 of 5-alanine linker-scanning mutant series  
of A

359 poptin

362 &lt;400&gt; SEQUENCE: 8

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364 Met Asn Ala Leu Gln Glu Asp Thr Pro Pro Gly Pro Ser Thr Val Phe
365 1                               5                               10                               15
368 Arg Pro Pro Thr Ser Ser Arg Pro Leu Glu Thr Pro His Cys Arg Glu
369                               20                               25                               30
372 Ile Arg Ile Gly Ile Ala Gly Ile Thr Ile Thr Leu Ser Leu Cys Gly
373                               35                               40                               45
376 Cys Ala Asn Ala Arg Ala Pro Thr Leu Arg Ser Ala Thr Ala Asp Asn
377                               50                               55                               60

```

380 Ser Glu Ser Thr Gly Phe Lys Asn Val Pro Asp Leu Arg Thr Asp Gln

381 65 70 75 80

384 Pro Lys Pro Pro Ser Lys Lys Arg Ser Cys Asp Pro Ser Glu Tyr Arg

385 85 90 95

388 Val Ser Glu Leu Lys Glu Ser Leu Ile Thr Thr Thr Pro Ser Ala Ala

389 100 105 110

392 Ala Ala Ala Arg Arg Arg Ile Arg Leu

393 115 120

396 &lt;210&gt; SEQ ID NO: 9

397 &lt;211&gt; LENGTH: 121

398 &lt;212&gt; TYPE: PRT

399 &lt;213&gt; ORGANISM: Chicken anemia virus

401 &lt;220&gt; FEATURE:

402 &lt;221&gt; NAME/KEY: MUTAGEN

403 &lt;222&gt; LOCATION: (1)..(121)

404 <223> OTHER INFORMATION: mutant Ala(5)-116 of 5-alanine linker-scanning mutant series  
of A

405 poptin

408 &lt;400&gt; SEQUENCE: 9

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410 Met Asn Ala Leu Gln Glu Asp Thr Pro Pro Gly Pro Ser Thr Val Phe
411 1                               5                               10                               15
414 Arg Pro Pro Thr Ser Ser Arg Pro Leu Glu Thr Pro His Cys Arg Glu
415                               20                               25                               30
418 Ile Arg Ile Gly Ile Ala Gly Ile Thr Ile Thr Leu Ser Leu Cys Gly

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**VERIFICATION SUMMARY**

DATE: 07/27/2005

PATENT APPLICATION: US/10/083,849C

TIME: 11:39:58

Input Set : A:\SequenceListing2.txt

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